

WHAT IS CLAIMED IS:

1. A run length limited code generation method,
comprising:

generating a plurality of different code
5 sequences, which have recording densities that
gradually become higher, as a plurality of different
code sequences which are to be recorded on a plurality
of successive subfields on a test data field of an
information storage medium.

10 2. A method according to claim 1, further
comprising:

generating the plurality of different code
sequences on the basis of a plurality of different run
length limitations which gradually decrease a minimum
15 run length of identical codes.

3. A method according to claim 1, wherein the run
length limited code generation method is a method of
generating a (d, k) run length limited code sequence
which meets a condition that a minimum run length of
20 identical codes is (d+1), and a maximum run length of
identical codes is (k+1), and

the method further comprises:

under the condition $d_1 > d_2 > \dots > d_L$,

generating a (d₁, k₁) run length limited code
25 sequence to be recorded on a first subfield of the
information storage medium;

generating a (d₂, k₂) run length limited code

sequence to be recorded on a second subfield of the information storage medium; and

generating a (dL, kL) run length limited code sequence to be recorded on an L-th subfield of the information storage medium.

4. A method according to claim 1, further comprising:

under the condition $P1 \leq P2 \leq \dots \leq PL$ and $P1 < PL$,
generating a run length limited code sequence that includes a minimum run length pattern with a frequency P1 of occurrence, a run length limited code sequence that includes a minimum run length pattern with a frequency P2 of occurrence, and a run length limited code sequence that includes a minimum run length pattern with a frequency PL of occurrence.

5. A run length limited code recording/reproduction apparatus for generating, recording, and reproducing a run length limited code sequence, comprising:

a generation unit for generating a plurality of different code sequences which have recording densities that gradually become higher; and

a recording unit for recording the plurality of different code sequences generated by the generation unit on a plurality of successive subfields in a test data field of an information storage medium.

6. An apparatus according to claim 5, wherein the

generation unit generates the plurality of different code sequences on the basis of a plurality of different run length limitations which gradually decrease a minimum run length of identical codes.

5 7. An apparatus according to claim 5, wherein the run length limited code generation apparatus is an apparatus for generating, recording, and reproducing a (d, k) run length limited code sequence which meets a condition that a minimum run length of identical
10 codes is (d+1), and a maximum run length of identical codes is (k+1),

under the condition $d_1 > d_2 > \dots > d_L$,

the generation unit generates a (d₁, k₁) run length limited code sequence, (d₂, k₂) run length
15 limited code sequence, and (d_L, k_L) run length limited code sequence, and

the recording unit records the (d₁, k₁) run length limited code sequence on a first subfield of the information storage medium, the (d₂, k₂) run length
20 limited code sequence on a second subfield of the information storage medium, and the (d_L, k_L) run length limited code sequence on an L-th subfield of the information storage medium.

8. An apparatus according to claim 5, wherein
25 under the condition $P_1 \leq P_2 \leq \dots \leq P_L$ and $P_1 < P_L$,
the generation unit generates a first run length limited code sequence that includes a minimum run

length pattern with a frequency P1 of occurrence,
a second run length limited code sequence that includes
a minimum run length pattern with a frequency P2 of
occurrence, and a third run length limited code
5 sequence that includes a minimum run length pattern
with a frequency PL of occurrence, and

the recording unit records the first, second,
and third run length limited code sequences in turn on
a plurality of successive subfields in a test data
10 field of an information storage medium.

9. An apparatus according to claim 5, further
comprising:

a reproduction unit for reproducing the plurality
of subfields in turn; and

15 an adjustment unit for adjusting reproduction
performance of the reproduction unit on the basis of
reproduction results of the plurality of subfields.

10. A run length limited code recording/
reproduction method for generating, recording, and
20 reproducing a run length limited code sequence,
comprising:

generating a plurality of different code sequences
which have recording densities that gradually become
higher; and

25 recording the plurality of generated different
code sequences on a plurality of successive subfields
in a test data field of an information storage medium.

11. A method according to claim 10, further comprising:

generating the plurality of different code sequences on the basis of a plurality of different run length limitations which gradually decrease a minimum
5 run length of identical codes.

12. A method according to claim 10, wherein the run length limited code generation method is a method for generating, recording, and reproducing a (d, k) run
10 length limited code sequence which meets a condition that a minimum run length of identical codes is (d+1), and a maximum run length of identical codes is (k+1), and

the method further comprises:

15 under the condition $d_1 > d_2 > \dots > d_L$,

generating a (d₁, k₁) run length limited code sequence, (d₂, k₂) run length limited code sequence, and (d_L, k_L) run length limited code sequence; and

recording the (d₁, k₁) run length limited code
20 sequence on a first subfield of the information storage medium, the (d₂, k₂) run length limited code sequence on a second subfield of the information storage medium, and the (d_L, k_L) run length limited code sequence on an L-th subfield of the information storage medium.

25 13. A method according to claim 10, further comprising:

under the condition $P_1 \leq P_2 \leq \dots \leq P_L$ and $P_1 < P_L$,

generating a run length limited code sequence that includes a minimum run length pattern with a frequency P1 of occurrence, a run length limited code sequence that includes a minimum run length pattern with a frequency P2 of occurrence, and a run length limited code sequence that includes a minimum run length pattern with a frequency PL of occurrence; and

recording the first, second, and third run length limited code sequences in turn on a plurality of successive subfields in a test data field of an information storage medium.

14. A method according to claim 10, further comprising:

reproducing the plurality of subfields; and
adjusting reproduction performance on the basis of reproduction results of the plurality of subfields.